IN THE CLAIMS

Please amend the claims as follows:

1. (Currently Amended) An integrated photonic apparatus comprising:

a glass substrate having a major surface;

a glass overcladding on the major surface of the substrate, wherein the glass overcladding includes a plurality of regions, each region having a different index of refraction, including a first region having a first index of refraction and a second region having a second index of refraction lower than the first index of refraction; [[and]]

a first waveguide formed along the major surface of the substrate, wherein the first waveguide has a higher index of refraction than an intrinsic index of refraction of adjacent portions of the substrate and the overcladding, and wherein the first waveguide has an edge along at least a portion of the first region of the glass ~~substrate~~ overcladding; and

wherein the first region is positioned to substantially confine a pump light.

2. (Original) The apparatus of claim 1, wherein the first region includes a dopant including an optically active species.

3. (Withdrawn) The apparatus of claim 1, wherein the first region acts to substantially confine a pump light.

4. (Withdrawn) The apparatus of claim 1, wherein a pump light is introduced into the second region, the pump light enters the first region from the second region, and the first region acts to substantially confine the pump light.

5. (Currently Amended) The apparatus of claim 1, wherein [[a]] the pump light is introduced into the first region from a face having an area much larger than a cross-sectional area of the first waveguide, and the first region acts to substantially confine the pump light.

6. (Currently Amended) ~~The apparatus of claim 1,~~ An integrated photonic apparatus comprising:

a glass substrate having a major surface;

a glass overcladding on the major surface of the substrate, wherein the glass overcladding includes a plurality of regions, each region having a different index of refraction, including a first region having a first index of refraction and a second region having a second index of refraction lower than the first index of refraction, wherein the first region includes a dopant including an optically active species;

a first waveguide formed along the major surface of the substrate, wherein the first waveguide has a higher index of refraction than an intrinsic index of refraction of adjacent portions of the substrate and the overcladding, and wherein the first waveguide has an edge along at least a portion of the first region of the glass overcladding; and

wherein a pump light is introduced into the first region from a first face having an area much larger than a cross-sectional area of the first waveguide, wherein the first region has a second face that is substantially reflective at a wavelength of the pump light, and the first region acts to substantially confine the pump light.

7. (Withdrawn) The apparatus of claim 1, wherein a pump light is introduced into the first region from a first face having an area much larger than a cross-sectional area of the first waveguide, wherein the first region has a second face that is substantially reflective at a wavelength of the pump light, and the first region acts to substantially confine the pump light, and wherein a light signal is introduced into the first waveguide at a third face that is substantially perpendicular to the first face and to the second face.

8. (Withdrawn) The apparatus of claim 1, wherein the first region is a base portion of the substrate, and the second region is a cladding deposited on the substrate.

9. (Withdrawn) The apparatus of claim 1, wherein the first region is formed at a non-perpendicular angle to a face of the apparatus.

10. (Withdrawn) The apparatus of claim 1, wherein at least a portion of a length of the waveguide is serpentine.

11. (Withdrawn) The apparatus of claim 1, wherein the first region crosses a length of the substrate, and the waveguide crosses the length within the first region.

12. (Withdrawn) The apparatus of claim 1, wherein the first region crosses a length of the substrate, and the waveguide crosses the length within the first region and is closer to one lateral side of the first region than to an opposing second side.

13. (Withdrawn) The apparatus of claim 1, wherein the first region crosses a length of the substrate, and the waveguide crosses the length within the first region and is closer to one lateral side of the first region than to an opposing second side, wherein the second region is substantially undoped by active optical species, the first region is doped with an active optical species.

14. (Withdrawn) The apparatus of claim 1, wherein the first region crosses a length of the substrate, and the waveguide crosses the length within the first region and is closer to one lateral side of the first region than to an opposing second side, wherein the second region is substantially undoped by active optical species, the first region is doped with an active optical species, and pump light is launched into the second region.

15. (Withdrawn) An integrated photonic apparatus comprising:

a glass substrate having a major surface, wherein the glass substrate includes a plurality of regions, each region having a different index of refraction, including a first region having a first index of refraction and a second region having a second index of refraction lower than the first index of refraction, the first region forming a first waveguide for constraining a pump light; and

a second waveguide formed along the major surface of the substrate, wherein the second waveguide has a higher index of refraction than an intrinsic index of refraction of adjacent portions of the substrate, and wherein the second waveguide passes through the first region and through the second region of the glass substrate, and wherein the pump light enters the second waveguide along its side in the first waveguide.

16. (Currently Amended) A method comprising:

providing a glass substrate having a major surface;

forming a plurality of regions on the glass substrate, each region having a different index of refraction, including a first region having a first index of refraction and a second region having a second index of refraction lower than the first index of refraction, wherein the first region acts to substantially confine a pump light; and

forming a first waveguide along the major surface of the substrate, wherein the first waveguide has a higher index of refraction than an intrinsic index of refraction of adjacent portions of the substrate, and wherein the first waveguide passes along at least a portion of the first region ~~of the glass substrate~~.

17. (Original) The method of claim 16, wherein the first region includes a dopant including an optically active species.

18. (Canceled).

19. (Withdrawn) The method of claim 16, further comprising:

introducing pump light into the second region, the pump light entering the first region from the second region, and wherein the first region acts to substantially confine the pump light.

20. (Currently Amended) The method of claim 16, further comprising:

introducing the pump light into the first region from a face of the substrate having an area much larger than a cross-sectional area of the first waveguide~~, and wherein the first region acts to substantially confine the pump light~~.

21. (Currently Amended) The method of claim 16, further comprising:

introducing the pump light into the first region from a first face of the substrate having an area much larger than a cross-sectional area of the first waveguide, wherein the first region has a second face that is substantially reflective at a wavelength of the pump light~~, and the first region acts to substantially confine the pump light~~.

22. (Withdrawn) The method of claim 16, further comprising:

introducing pump light into the first region from a first face of the substrate having an area much larger than a cross-sectional area of the first waveguide, wherein the first region has a second face that is substantially reflective at a wavelength of the pump light, and the first region acts to substantially confine the pump light, and wherein a light signal is introduced into the first waveguide at a third face that is substantially perpendicular to the first face and to the second face.

23. (Withdrawn) The method of claim 16, wherein the first region is a base portion of the substrate, and the second region is a cladding deposited on the substrate.

24. (Withdrawn) The method of claim 16, wherein the first region is formed at a non-perpendicular angle to a face of the apparatus.

25. (Withdrawn) The method of claim 16, wherein at least a portion of a length of the waveguide is serpentine.

26. (Withdrawn) The method of claim 16, wherein the first region crosses a length of the substrate, and the waveguide crosses the length within the first region.

27. (Withdrawn) The method of claim 16, wherein the first region crosses a length of the substrate, and the waveguide crosses the length within the first region and is closer to one lateral side of the first region than to an opposing second side.

28. (Withdrawn) The method of claim 16, wherein the first region crosses a length of the substrate, and the waveguide crosses the length within the first region and is closer to one lateral side of the first region than to an opposing second side, wherein the second region is substantially undoped by active optical species, the first region is doped with an active optical species.

29. (Withdrawn) The method of claim 16, wherein the first region crosses a length of the substrate, and the waveguide crosses the length within the first region and is closer to one lateral side of the first region than to an opposing second side, wherein the second region is substantially undoped by active optical species, the first region is doped with an active optical species, and pump light is launched into the second region.

30. (Withdrawn) An integrated photonic apparatus comprising:

a glass substrate having a major surface;

first waveguide means for constraining a pump light; and

second waveguide means for constraining a signal light along the major surface of the substrate, wherein the second waveguide means passes along at least a portion of the first waveguide means, and wherein the pump light enters the second waveguide means along its side from the first waveguide means.

Please add the following new claims:

31. (New) The apparatus of claim 1, wherein the first waveguide has an edge along at least a portion of the first region of the glass overcladding to multiplex a wavelength of the pump light from the first region into the first waveguide.

32. (New) The apparatus of claim 31, wherein:

a cross-sectional area of the first waveguide is positioned to receive a signal wavelength; and

the wavelength of the pump light is to be multiplexed with the signal wavelength.

33. (New) The apparatus of claim 1, wherein the pump light is introduced into the first region from a first face having an area much larger than a cross-sectional area of the first waveguide, wherein the first region has a second face that is substantially reflective at a wavelength of the pump light, and the first region acts to substantially confine the pump light.

34. (New) The apparatus of claim 6, wherein the first waveguide has an edge along at least a portion of the first region of the glass overcladding to multiplex the wavelength of the pump light from the first region into the first waveguide.

35. (New) The apparatus of claim 34, wherein:

the cross-sectional area of the first waveguide is positioned to receive a signal wavelength; and

the wavelength of the pump light is to be multiplexed with the signal wavelength.

36. (New) The method of claim 16, further comprising multiplexing a wavelength of the pump light from the first region into the first waveguide.

37. (New) The method of claim 36, further comprising:

receiving a signal wavelength in a cross-sectional area of the first waveguide; and

multiplexing the wavelength of the pump light with the signal wavelength.